

Introduction

Sketching the Contemporary Era

Democracy cannot dominate every domain—that would destroy expertise—and expertise cannot dominate every domain—that would destroy democracy.

—HARRY COLLINS AND ROBERT EVANS,
Expertise Reconsidered (2007)

Countless thinkers, especially in philosophy and the humanities, throughout the ages have sought to capture and document the “human condition.” What does it mean to be human? Who are we in the context of personal, social, and historical circumstances? What are the material, cultural, and spiritual conditions that shape us? What resources and constraints confront us not only in our daily lives, but also in our relationships with the institutions and the processes that connect us all? What is the range of choices, what decisions do we make when faced with those choices, and why? Countless characterizations have filled the caldron quest that seeks an answer to the question of the human condition, the question of who we are—as individuals, as social animals, and as a species.

Risk: Taming Uncertainty

Whatever the specific answer that scholars may put to the question, one ineluctable feature of the specific conditions in which humans have found themselves is uncertainty. It has always been this way. It will always be this way, even as the context of individual and societal conditions inevitably changes. Since our evolutionary origins, *Homo sapiens* always have been confronted with choices under conditions of uncertainty—that is, states of the world where the circumstances are unknown or undeterminable but decisions must be made. Often, that uncertainty stems from threats to humans and what they value—that is, the threats we now call *risk*.

As we have outlined, the advanced modernity of the twentieth century witnessed a hyper-accelerated change in the number of risks produced, their magnitude, and their global spread. Early modernity, of course, laid the groundwork for this evolutionary past. A considerable body of research has documented the now well-known structural changes associated with modernity: the rise of science and engineering, industrialization, economic growth, urbanization, demographic shifts, the emergence of markets and their globalization, new transportation infrastructures, and the expansion of global communications.

But often neglected in modernity studies is the most fundamental change of all: a change in worldview. In particular, serving as both a cause and an effect of modernity was a shift in how we thought historical processes unfolded. Pre-modern thinking was dominated by the belief that life was cyclical; modern thinking, in contrast, was dominated by a belief in directionality. “In a premodern society, where the purpose of life is understood to be the reproduction of the customs and practices of the group, and where people are expected to follow the life path their parents followed, the ends of life a given at the beginning of life. . . . Modern societies do not simply repeat and extend themselves; they change in unforeseeable directions, and the individual’s contribution to these changes is unspecifiable in advance” (Menand 2001: 399).

Three key elements of this worldview change directly set the stage for risk and risk governance: uncertainty, future projections, and decision making. Removing the cyclical cake of custom that predetermines the direction of individual and societal change, humans now lived in a world with an uncertain but shapeable future. Future directions, assured by past patterns, with modernism became probabilistic estimates, not determined processes. And individual and collective decisions, which were obviated by the deterministic processes of pre-modernity, now became a central governance challenge for societies. Putting the matter succinctly, our ideas about risk could have crystalized the way they have only with this worldview change.

All concepts of risk have one element in common: the distinction between possible and chosen actions (Renn 1992). Philosophers refer to this as the ability of humans to anticipate virtual “future” contingencies. It is based on the assumption that humans have agency to shape the future rather than just experience it. At any time, an individual, an organization, or a society as a whole faces several options for taking action (including doing nothing), each of which is associated with potential positive or negative consequences. If option A is not taken, a possible future pathway is (deliberately) excluded. Thinking about risks helps people to select the option that promises at least a marginal surplus benefit compared with all other available options. Humans thus have the ability to design different futures. We can construct scenarios that serve as tools for us to anticipate consequences and to adjust, within the constraints of nature and culture, our course of actions accordingly. Hence, risk decision making is at the core of human agency. Thinking about “what could happen” is one of the major distinctions between instinctive and deliberate actions. Hence, in this book we specifically address the connections between risk and the human condition.

Few features of the human experience can compete with risk for its ubiquity over time and across place. Consider the risk of saber-toothed tigers to our distant ancestors or the risk of hostile conditions or hostile peoples encountered by ancient mariners. Or consider the risk of mine collapses threatening our industrial forebears or the risk from recurring natural disasters such as the volcano Krakatoa in the nineteenth century. Think about natural disasters still in the public memory, such as the Indian Ocean earthquake and tsunami in 2004, the earthquake and tsunami off the Pacific coast of Japan in 2011, Hurricane Katrina in the U.S. Gulf Coast in 2005, and human disasters such as the British Petroleum (BP) oil spill in the Gulf of Mexico in 2010. Even consider the growing recognition of the risk of climate change, the financial consequences of collateralized debt obligations and credit default swaps, and the hidden risks of new technology such as genetic engineering. These examples and many more like them illustrate that risk always has been and always will be a central feature of the human condition. There is no other option. Indeed, it would not be entirely far-fetched to write a history of the human condition as a narration of human challenges and responses in understanding uncertainty and in managing risks.¹

We share the experience of risk with all of our forebears. What distances the contemporary era of advanced modernity—where societies nearly everywhere are undergoing fundamental structural transformations—from previous ages, first, are the types of risks that concern us. While we no longer worry about routine attacks by wild animals, we do worry about the quality of air and water everywhere and about the possibility of runaway nanotechnology facing our descendants. Further distancing this present age of structural ferment from the past are the *pace*, *scale*, and *spread* of risks around the world (see Rosa, McCright, and Renn 2010). There is virtually no place left on Earth where one can completely avoid complex technology, its interactions, and—importantly—its risks. For instance, a peasant in the remote rice fields of rural Vietnam faces not only the risks of the traditional vagaries of farming—such as weather and markets—and possible famine but also a whole host of new risks of advanced modernity, including the risk of illness due to the toxicity associated with the introduction of pesticides and herbicides; the risk of acid rain from the burning of high-sulfur coal in India; the risk of frequent and excessive flooding from a dam built for electrical power; the risk of radiation exposure from a nuclear accident in nearby China; and the risk from global climate change induced by carbon dioxide emissions thousands of miles away.

Risk is now such a central feature of societies everywhere that its presence is frequently camouflaged by its ubiquity and embeddedness. As a result, mounting risks are typically submerged below the conscious awareness of the individuals who are exposed to them. Added to the incremental growth of technological risks is the growth of abrupt risks introduced by terrorists around the

1. A partial such history is Diamond 2005.

world (Atran 2010). The capacity for imposing many terrorist risks is made possible by the use of modern technology (e.g., jetliners and bioengineered viruses) and by the global connections enabled by technology. How do we characterize this era of pervasive risks of greater magnitude, spread, and awareness than any time in the past? To this question the German theorist Ulrich Beck provided the answer in the title of his 1986 book *Risk Society*.

A name can identify an era, but it cannot explain it. What is clear is that the pervasive and widespread pattern of risk is the result of economic, social, and political forces that transcend the individual psyche and experience. They are social forces that beg sociological investigation. What is our sociological understanding of risk in this era of advanced modernity? What is our understanding of the risk society? In this book we grapple with these questions.

What Is Going On?

The principal efforts to address this pivotal sociological question have come from the European tradition in sociological theory. The idea of “the risk society,” first advanced by Beck, who coined the term, also has been taken up by other leading European theorists—particularly Anthony Giddens and Niklas Luhmann. While they differ in the details, Beck and Giddens share a vision about risk that stems from the process of globalization, from the boundless reach of risk, and from the effect risk has on individual identity and civic involvement. Luhmann, however, provides a stark contrast in orientation. He extends his social systems approach to the topic of risk, seeking to understand how systems are socially constructed, how they demarcate between risk and danger, and how they manage risk. For Luhmann, there is no place for agency—that is, for individual identity or action—in risk systems.

This book provides, for the first time in one place, a critical, pedagogical exposition of these theorists. This exposition is augmented by theoretical principles we three authors have developed to address neglected or underdeveloped issues by these risk society theorists. In particular, the thirty thousand-foot-high abstraction of risk society theorizing has left far below—too far for them to see—the sizable and growing literature accumulated in the risk characterization, assessment, and management field. We draw insights from that literature to provide a ground level complement to abstract European theory. The disciplined comparison of these three theorists, along with the integration of other theoretical principles by the authors, ensures that this book will be a unique contribution to the contemporary *problématique* centered on risk.

What to Do about It: Risk Governance

What actions can be taken to deal with the *problématique*? Traditional theorizing is typically framed to address “what is” questions, to explain the past or current state of the world, and to identify the social forces that have made it so. So, too, for the risk society theorists. From their theoretical standpoint, assess-

ing and managing specific risks is of little intrinsic interest. While they may adumbrate broad social intentions and practices in the risk society, they leave the dirty work of risk governance and management to others. Therefore, analysts, policymakers, and practitioners must do the work of anticipating risk and managing it. Stated differently, the key goal of this book is to integrate the lofty whiteness of risk society theory with the sooty details of risk decision making.

The sooty work that constitutes all phases of risk decision making is captured in the idea of *risk governance*. This term links the experience of risk with the individual and institutional mechanisms of risk generation, observation, consequence anticipation, and management. The general concept of governance “refers to a complex of public and/or private coordinating, steering, and regulatory processes established and conducted for social (or collective) purposes where powers are distributed among multiple agents, according to formal and informal rules” (Burns and Stöhr 2011: 173). In the case of risk, this collection of processes is set in motion by the recognition that a risk—say, of a toxic substance in the environment—may be present and needs to be characterized and managed collectively. The general process of making and implementing collective decisions (governance) is as old as the human species itself. It encompasses the traditions and institutions that are the vehicle and outcome of these decisions and has a long past.²

But that long past was interrupted by centuries of inattention. In earlier decades, the broad charge embedded in the idea of governance devolved into a much narrower idea that refers to the administrative functions of government bodies and formal organizations. Governance took on a pedestrian quality.

Recent events have changed all that. Entirely new forms of coordination and regulation have emerged in response to rapidly changing societal conditions, such as globalization. Boundaries between the public and private spheres, between formal governmental bodies and informal political actors (especially nongovernmental organizations), and between markets and business interests and the regulatory needs of society all are blurred. At the same time, due to the growing recognition of the increased scale of collective problems, the domains of sovereignty shifted upward to supranational bodies.³ Owing to these and other changes, the idea of governance has been re-elevated to its original—broad—scope while attracting unprecedented cachet. A number of key events are responsible for that elevation. Among them is a general rejection of the word “government” in favor of “governance” in postmodern thought on political and economic institutions. Others include the adoption of “governance” in the official parlance of the European Union. Still more specific actions include the prominent place (including its own title) the term holds in the prestigious

2. The etymology of the term dates back to the Ancient Greek times (Halachmi 2005; Kjaer 2004). Plato used the term *kubernan* as a reference to leadership, which assimilated in Latin to *gubernanre*. This notion evaluated along various trajectories. In addition to its meaning in English, it is part of, among others, the French, Spanish, and Portuguese vocabulary.

3. For an elaboration, see Burns and Stöhr 2011.

independent organization in Geneva: the International Risk Governance Council (IRGC).

Drawing on an analysis of a selection of well-established approaches to what traditionally has been called “risk analysis” or “risk handling,” the IRGC already has made an attempt to develop a framework of risk that integrates the concept of governance (International Risk Governance Council 2005, 2007; Renn 2008b: 47ff.). This framework promises to offer both a comprehensive means of integrating risk identification, framing, assessment, characterization, management, and communication and a tool that can compensate for the absence of—or weaknesses in—risk governance structures and processes. The risk *governance* process is understood to include, but also to go beyond, the three conventionally recognized elements of *risk analysis* (assessment, management, and communication). *Governance* thus includes matters of institutional design, technical methodology, administrative consultation, legislative procedure, and political accountability on the part of public bodies and social or corporate responsibility on the part of private enterprises. But it also includes a more general provision on the part of government, commercial, and civil society actors for building and using scientific knowledge, for fostering innovation and technical competences, for developing and refining competitive strategies, and for promoting social and organizational learning.

The governance framework builds on the logical structure of four consecutive phases of risk analysis: pre-assessment, appraisal, characterization/evaluation, and management. In addition, risk *communication* accompanies all four phases (Renn 2008b). Within each of the phases, specific criteria are listed that are deemed essential for meeting the requirements of “good” or effective governance. This simple framework is consistent with almost all other competing concepts and ensures the compatibility of the framework with professional codices and risk governance legislation.

Moreover, the framework renders the established linear structure—in common with other contemporary conceptions of risk governance—into an “open, cyclical, iterative, and interlinked process” (Renn 2008b: 47). This conceptualization of risk governance is illustrated in Figure I.1. It consists of the five phases identified above: the four core phases (pre-assessment, appraisal, characterization/evaluation, and management) and the fifth (risk communication), which bridges all phases. The four core phases make up two complementary activities: generating and evaluating knowledge (vertical axis) and decision-making and management (horizontal axis).

The importance of governance for risk has been highlighted by the co-awarding of the 2009 Nobel Prize in Economics to Elinor Ostrom for her work on governance of the commons—decision making about common pool resources. (Ostrom’s co-winner was the economist Oliver Williamson.) To quote the Nobel Committee, “Common-pool resources . . . are resources to which more than one individual has access, but where each person’s consumption reduces availability of the resource to others” (Royal Swedish Academy of Sciences 2009: 8). Decisions about the disposition of such resources are clearly

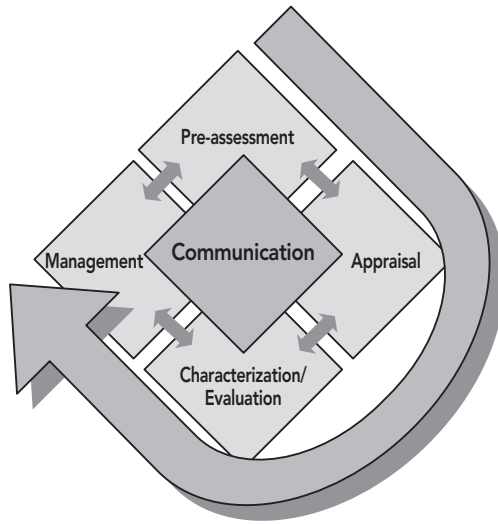


Figure I.1 The Five Elements of Risk Governance

about governance, as the committee underscored by naming its award to Ostrom “Economic Governance.” But the connection between the use of common pool resources and risk, as is the case elsewhere, is less transparent. It is nevertheless present in virtually all decisions involving the allocation of commons goods or bads. How we manage chemicals in the immediate environment bears directly on human health. How we use finite resources, including common pools such as the air and water of the planet, bears directly on the risk of making the planet unsustainable. How we choose our fuels that emit greenhouse gases bears directly on the systemic risk of climate change. Few risks can compete in magnitude with these systemic ones.

To summarize, we have argued for risk as a constant of the human condition; claimed that the risks of advanced modernity exceed in pace, magnitude, and spread the risks of all previous generations; and put forth the need for a link between risk theory and a theoretically grounded basis for risk governance. Risk theory, as noted above, is provided by the European risk society theorists. The theoretical underpinning of governance, we will then argue, is provided by the German philosopher, social theorist, and public intellectual Jürgen Habermas. We make this argument under a banner of self-recognized irony: Habermas never explicitly dealt with risk or provided a blueprint for its governance.

Nevertheless, it is a small step from his remarkable insights about the transformation of the spontaneity of the *Lebenswelt* (lifeworld) into the rational calculus of the political and social world—that is, to the calculus of the risk society (see Rosa, McCright, and Renn 2010). Furthermore, his Habermasian theory of communicative action (HCAT) provides a foundation for arriving at a rational and legitimate consensus over relevant knowledge and preferred action. It also presents a theoretically informed framing for risk governance within a

democratic context. The HCAT is one of the most refined elements of Habermas's lifelong project. That project has been to integrate the positivist tradition of the physical and social sciences with the semantic hermeneutics of the humanities to arrive at, after Wittgenstein, consensual knowledge and action. Risk provides an especially appropriate context not only to draw on the indispensability of science, but to take into account citizens' preferences for the most appropriate science and to arrive at consensus about appropriate action in the light of that science.⁴ Our goal of combining the theoretical insights of the three risk society theorists with the Habermasian basis for risk governance represents an unprecedented step. Only by the reception of readers will we be in a position to judge whether this is a step forward or backward.

Outline of the Book

In Part I ("Social Science Foundations of Risk"), we explicate the meta-theoretical foundations of risk (Chapter 1), first defining the concept and then elaborating on the different ontological and epistemological positions that risk theorists have taken. This will aid our comparison of the work of risk theory scholars in Part II. In Chapter 2, we present a brief, recent history of social-science work on risk, focusing on the pivotal role played by the risk crisis of 1986: the Chernobyl catastrophe, the *Challenger* accident, and the pollution of the Rhine River after a fire destroyed a chemical storage building in Basel, Switzerland. After 1986, the *risk society* frame became firmly implanted in the social-science scholarship on risk through the continued work of Ulrich Beck, Anthony Giddens, and Niklas Luhmann and the increased appearance of systemic risks everywhere.

In Part II ("Risk and Social Theory"), we explore the theoretical insights about societal risk that are offered by several leading social theories. We begin in Chapter 3 with a critique of the rational action framework, the perspective guiding technical risk assessment and much work on risk governance in recent decades—generally proceeding quite independently of theory. In the two chapters that follow that one, we critically analyze the possible contributions that the reflexive modernization theories of Ulrich Beck and Anthony Giddens (Chapter 4) and the systems theory of Niklas Luhmann (Chapter 5) can make to our sociological understanding of societal risk in advanced modernity. Rather than conduct a comprehensive examination of any one these perspectives, we instead investigate more specifically how the theories address the following three questions:

1. What social order emerges in advanced modern societies where technological and ecological risks are virtually everywhere?
2. What is our knowledge about these risks?

4. Ortwin Renn has taken broad lessons from Habermas to develop a theoretically informed but practical framework for executing democratically based risk governance (see Aven and Renn 2010; Renn 2008b; Renn and Walker 2008).

3. How can societies develop the institutional and political means for governing and managing risk effectively?

While Luhmann's systems theory precludes acknowledging that there may be an effective overall system of governance in advanced modernity, Beck and Giddens each call for a deeper democratization of risk governance. While Beck and Giddens provide a theoretical rationale for such an approach, the details where devils often lie are left unaddressed. In Chapter 6, we turn to the critical theory of Jürgen Habermas for a detailed analysis of the theoretical underpinning of governance. His HCAT provides a foundation for arriving at a rational and legitimate consensus over relevant knowledge and preferred action. It also presents a theoretically informed framing for risk governance within a democratic context.

Building on our arguments for a sociology of risk from Part I and responding to the risk society theorists' calls for more democratic risk governance discussed in Part II, we lay out our ideas for enhancing risk governance in Part III ("Risk Governance: Links between Theory and Strategy"). To better understand the grand challenges we increasingly face, we first discuss the emergence of systemic risks (e.g., the world financial crisis of 2008, global ecological vulnerability), which threaten to undermine entire systems (Chapter 7). Further, in Chapter 8, we discuss in greater detail three features of systemic risks that make them especially difficult to understand and to govern: *complexity*, *uncertainty*, and *ambiguity*. This provides a foundation for understanding the special challenges that systemic risks impose on advanced modern societies.

In Chapter 9, we first explore the genesis and analytical scope of risk governance. We then introduce a framework for adaptive and integrative risk governance for these new systemic risks that aims to address the features of complexity, uncertainty, and ambiguity in a much more effective way than traditional risk management practices. We also derive lessons for each stage of this risk governance process: pre-estimation, interdisciplinary risk estimation, risk characterization, risk evaluation, and risk management (with risk communication and public involvement occurring in each stage).

We argue that the combination of analytic rigor and deliberative democracy is the most effective risk governance strategy for dealing with systemic risks. Thus, in Chapter 10, we characterize the main features of—and conditions for—successful implementation of an analytic-deliberative process. With this approach, decisions on risk reflect effective regulation, efficient use of resources, legitimate means of action, and social acceptability. We summarize and wrap up our argument in the Conclusion.